



R22 Regulation

Subject code:4P5EG&4E5GC

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

(Autonomous, Accredited by NAAC with 'A+' Grade)

B.Tech V Semester Supplementary Examinations, May 2025

ARTIFICIAL INTELLIGENCE

(Common to CSE & CSE(AI&ML))

Maximum Marks: 60

Date:26.06.2025

Duration: 3 hours

- Note: 1.This question paper contains two parts A and B.
 2. Part A is compulsory which carries 10 marks. Answer all questions in Part A.
 3. Part B consists of 5 Units. Answer any one full question from each unit.
 4. Each question carries 10 marks and may have a, b, c, d as sub questions.

Part-A

All the following questions carry equal marks (10X1M=10 Marks)		Marks	CO	Bloom Tx
1.a)	Define a search algorithm in the context of AI.	1M	1	BL 1
b)	Describe the role of heuristics in search strategies.	1M	1	BL 2
c)	Identify key characteristics of intelligent agents.	1M	2	BL 1
d)	Explain the concept of a knowledge-based agent.	1M	2	BL 2
e)	List the components involved in adversarial search.	1M	3	BL 1
f)	Illustrate the use of forward and backward chaining in inference.	1M	3	BL 2
g)	Analyze the implications of using first-order logic over propositional logic.	1M	4	BL 4
h)	Compare the different methods of knowledge representation in AI.	1M	4	BL 4
i)	Summarize the differences between Bayesian networks and traditional decision trees.	1M	5	BL 2
j)	Discuss the impact of uncertainty on AI decision-making processes.	1M	5	BL 2

Part-B

Answer All the following questions. (5X10M=50Marks)		Marks	CO	Bloom Tx
2	Discuss the concept of heuristic search and how it improves search efficiency in AI algorithms.	10M	1	BL 3
OR				BL 4
3	Compare and contrast iterative deepening depth first search with depth-first search.	10M	1	
4	Analyze the process of resolution in propositional logic and its application in automated reasoning.	10M	2	BL 4
OR				BL 3
5	Describe the significance of constraint satisfaction problems (CSPs) and provide examples of their applications.	10M	2	
6	Evaluate the effectiveness of different inference techniques used in First-Order Logic.	10M	3	BL 4
OR				

				BL 3
7	Illustrate how unification is applied in First-Order Logic and its importance in knowledge representation.	10M	3	
8	Summarize the role of categories and objects in ontological engineering, providing real-world examples.	10M	4	BL 2
	OR			
9	Distinguish between various planning algorithms in AI and discuss their strengths and weaknesses.	10M	4	BL 3
10	Clarify how the semantics of Bayesian networks are utilized to model uncertain knowledge.	10M	5	BL 4
	OR			
11	Assess the advantages and disadvantages of using Dempster-Shafer theory over traditional probability approaches.	10M	5	BL 3